Code No: 20CS4601C

**PVP20**

**PVP Siddhartha Institute OF TECHNOLOGY**

**(Autonomous)**

**BlockchAIN TECHNOLOGY**

**Duration: 3 Hours Max. Marks: 70**

Note:

1. Contains 5 essay questions with an internal choice. Each question carries 14 Marks.
2. All parts of Question paper must be answered in one place.

5 x 14 = 70 Marks

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|  |  |  | Blooms Level | CO | Max. Marks |
| **UNIT-I** | | | | | |
| 1 | (a) | Outline the benefits and limitations of blockchain technology | L2 | CO1 | 8 |
| (b) | Construct a Merkle tree and explain how it is used for efficiently summarizing and verifying the integrity of large sets of data | L3 | CO2 | 6 |
| **OR** | | | | | |
| 2 | (a) | Explain the structure of a blockchain network with a diagram | L2 | CO1 | 7 |
| (b) | Build a figure to visualize the process of block generation | L3 | CO2 | 7 |
| **UNIT-II** | | | | | |
| 3 | (a) | Explain the terms smart contracts and Decentralized autonomous organizations | L2 | CO1 | 7 |
| (b) | Identify the methods required to achieve decentralization | L3 | CO2 | 7 |
| **OR** | | | | | |
| 4 | (a) | Build a block diagram to visualize the blockchain decentralized ecosystem | L3 | CO2 | 7 |
| (b) | Explain how data is stored in a blockchain | L2 | CO1 | 7 |
| **UNIT-III** | | | | | |
| 5 | (a) | Model a public key cryptography signature scheme for digital currency transactions | L3 | CO2 | 7 |
| (b) | Construct a flowchart to visualize the process of mining a bitcoin | L3 | CO2 | 7 |
| **OR** | | | | | |
| 6 | (a) | Identify the measures need for Bicoin Improvement | L3 | CO2 | 7 |
| (b) | Model a diagram to visualize blockchain,block,blockheader,transaction and scripts | L3 | CO2 | 7 |
| **UNIT-IV** | | | | | |
| 7 | (a) | Develop a smart contract to store values to blockchain and then retrieve same from the blockchain | L3 | CO3 | 7 |
| (b) | Identify why an attacker could try creating contracts including lots of computationally expensive operation to slow down the network | L3 | CO3 | 7 |

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| **OR** | | | | | |
| 8 | (a) | Develop a smart contract to to insert value into Ethereum blockchain using metamask | L3 | CO3 | 7 |
| (b) | Identify the benefits and limitations of creating Dapps | L3 | CO3 | 7 |
| **UNIT-V** | | | | | |
| 9 | (a) | Construct flowchart to demonstrate workflow of Hyperledger Fabric | L3 | CO3 | 7 |
| (b) | Analyze the current problems in voting and how blockchain will help to resolve those problems. | L4 | CO4 | 7 |
| **OR** | | | | | |
| 10 | (a) | Identify the Benefits of IoT on convergence with blockchain | L3 | CO3 | 7 |
| (b) | Analyse how security concerns in aviation can be handled by blockchain | L4 | CO4 | 7 |

Course Coordinator: Signature of HoD